

***Remarks***

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 2, 4, 13, and 19-25 are pending in the application, with claims 2, 19, and 23 being the independent claims. Claims 3, 5-12, and 14-18 are sought to be canceled without prejudice to or disclaimer of the subject matter therein. Claims 2, 4, and 19-21 are sought to be amended. Applicants reserve the right to prosecute similar or broader claims, with respect to the amended and cancelled claims, in the future. New claims 23-25 are sought to be added.

The specification is sought to be amended throughout through submission of a substitute specification.

The abstract is sought to be amended to delete the title of the invention and amend the heading.

The figures are sought to be amended to include element numbers.

These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

**Elections/Restrictions**

Applicants have canceled claims 3, 5-12, and 14-18 without prejudice to or disclaimer of the subject matter therein as being directed to a non-elected Group.

**Objection to the Drawings**

The Examiner, at page 3 of the Office Action, objected to the drawings "because they fail to label all of the elements contained within and are not in English." Applicants

respectfully submit the attached replacement sheets of drawings including Figures 1-5 overcome this objection. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the objection to the drawings.

**Objection to the Specification**

The Examiner, at page 4 of the Office Action, objected to the specification for not identifying sections as prescribed by 37 C.F.R. § 1.77(b). Applicants respectfully submit the attached substitute specification overcomes this objection. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the objection to the specification.

**Rejections Under 35 U.S.C. § 112**

***First Paragraph***

The Examiner, at page 5 of the Office Action, rejected claims 19-21 under the first paragraph of 35 U.S.C. § 112. Applicants respectfully traverse this rejection. Based on the amendments above, Applicants respectfully request that the Examiner reconsider and withdraw the rejections of claims 19-21 under the first paragraph of 35 U.S.C. § 112.

***Second Paragraph***

The Examiner, at page 6 of the Office Action, rejected claims 2, 4, 13, and 20 under the second paragraph of 35 U.S.C. § 112. Applicants respectfully traverse these rejections. Based on the amendments above, Applicants respectfully request that the Examiner reconsider and withdraw the rejections of claims 2, 4, 13, and 20 under the second paragraph of 35 U.S.C. § 112.

**Rejection Under 35 U.S.C. § 102**

The Examiner, at page 8 of the Office Action, rejected claim 2 under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent Application Publication No. 2002/0164884 to Lishan ("Lishan"). Applicants respectfully traverse this rejection.

Claim 2 recites features that distinguish over the applied reference. For example, claim 2 recites, in part, (emphasis added):

*structuring a first photo lacquer on a surface of the first metal layer, wherein a portion of the surface of the first metal layer does not have the first photo lacquer thereon;*  
*etching the portion of the surface of the first metal layer not having the first photo lacquer;*  
*undercut etching the first metal layer so that an overhang is defined by the first photo lacquer[.]*

Lishan does not disclose, teach, or suggest: (1) structuring a first photo lacquer *on a surface of a first metal layer*; (2) refraining from structuring the first photo lacquer on *a portion* of the surface of the first metal layer; or (3) undercut etching *the first metal layer*, as recited, using respective language, in claim 2. Rather, Lishan, at paragraphs [0007] and [0008], recites (emphasis added):

For example, in one conventional method, shown in FIGS. 1A-1E, a patterned photoresist and dielectric can be utilized. In FIG. 1A, *a photoresist 2 is deposited on a dielectric layer 8*, which is deposited on a metal 10, which is deposited on a substrate 12. In FIG. 1B, the photoresist is exposed to radiation through a conventional photo-mask, exposing regions 4 and 6. Following development or removal of the exposed regions, the patterned structure 16 remains in FIG. 1C. A selective etchant is then used to remove the dielectric layer 8 in the uncovered regions. *The dielectric can be "over" etched* to reduce the dimensions of the dielectric such that the lateral dimension is less than the patterned photoresist 16 (i.e. the dimension x is less than the dimension x'). Another selective etchant can then be used to remove portions of the metal layer 10 where the dielectric material acts as an etching mask.

The above process creates a metal area 20 that can be used as part of a device, e.g., as a gate in a transistor structure. After this etch, a second metal deposition can be performed over the entire structure (see layers 22, 24, 26) as shown in FIG. 1F. Due to the presence of the overhanging structure 16,

metals (22 and 24) are deposited on either side of layer 20 and are spaced away from 20, creating non-contiguous metal layers. The photoresist and dielectric can then be removed and the metal 26 atop the photoresist is lifted off. The final arrangement of metals are shown in FIG. 1G.

In other words, Lishan discloses: (1) structuring the photoresist 2 on the *whole* (i.e., not a portion of the) *dielectric* layer 8; and (2) etching the *dielectric* 8. Therefore, independent claim 2 is not anticipated Lishan.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claim 2 under 35 U.S.C. § 102(b).

**Rejection Under 35 U.S.C. § 103**

The Examiner, at page 9 of the Office Action, rejected claims 19-22 under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent Application Publication No. 2004/0075155 to Huang *et al.* ("Huang") in view of U.S. Patent Application Publication No. 2003/0183915 to Scheifers *et al.* ("Scheifers"). Applicants respectfully traverse this rejection.

Claim 19 recites features that distinguish over the applied references. For example, claim 19 recites (emphasis added) “a second electrode on the substrate, wherein *a separation between the first electrode and the second electrode is between ten nanometers and one hundred nanometers.*”

Huang, at paragraph [0035], recites (emphasis added):

As illustrated in FIG. 5, the tool 80 is then removed from the device 10. Suitable types of cooling may be utilized prior to the removal, in order to ensure that the substrate 12 is sufficiently cooled so as to maintain the gap 24 between the source 14 and the drain 16. *The gap 24 may have a width between the source 14 and the drain 16 of less than 1 μm (micron),* although it will be appreciated that other widths may be utilized.

As is clearly understood by the Examiner, obviousness requires “a person having ordinary skill in the art (PHOSITA) *at the time of the invention.*” In light of the desire in the

semiconductor industry to produce electron devices with ever smaller feature sizes, it is unreasonable to read a passing reference in Huang that “*The gap 24 may have a width between the source 14 and the drain 16 of less than 1  $\mu\text{m}$  (micron),*” as teaching to a PHOSITA *at the time of the invention* a separation of one hundred nanometers, as recited in claim 19. As provided at section 2144.05(III) of the Manual of Patent Examining Procedure:

Applicants can rebut a *prima facie* case of obviousness based on overlapping ranges by showing the criticality of the claimed range. "The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range." *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

Had the method of Huang been capable of such a vast improvement in the reduction of feature sizes, Huang would have stated this ability clearly in his patent application.

Also, Applicants respectfully assert that the Examiner's statements regarding Huang improperly and impermissibly go beyond the disclosure of the reference and, rather than any evidence of record, find their basis only in speculation, which is against current BPAI and Federal Circuit law. Specifically, both the BPAI and Federal Circuit require the Examiner to show obviousness without relying on mere speculation or conjecture. (*See In re Lee*, 277 F.3d 1338, 1342-44 (Fed. Cir. 2002) (discussing the importance of relying on objective evidence and making specific factual findings with respect to the motivation to combine references) (emphasis added).) Further, M.P.E.P. Section 2144.03(a) states that "[i]t is never appropriate to rely solely on "common knowledge" in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based." (Emphasis added.) (*See In re Zurko*, 258 F.3d 1379, 1385 (Fed. Cir. 2001) ("[T]he Board cannot simply reach conclusions based on its own understanding or experience--or on its assessment of what

would be basic knowledge or common sense. Rather, the Board must point to some concrete evidence in the record in support of these findings.".)

On page 11 of the Office Action the Examiner states, to which Applicants do not acquiesce, that Scheifers teaches "a conventional bottom-gate transistor with a sealing layer...on the organic semiconductor." However the Examiner does not use Scheifers to teach or suggest, neither does it teach or suggest, at least the above-noted distinguishing feature. Thus, Scheifers does not cure the deficiencies of Huang, and the applied references cannot be used to establish a prima facie case of obviousness.

Therefore, independent claim 19 is patentable over Huang in view of Scheifers. Because each of claims 20-22 depends upon claim 19 and because of the additional distinctive features of each of claims 20-22, these claims are also patentable over Huang in view of Scheifers. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejections of claims 19-22 under the U.S.C. § 103(a).

### **New Claims**

Claim 23-25 are sought to be added. Support for new claims 23-25 can be found throughout the specification including, for example, at the first paragraph.

New claim 23 recites features that distinguish over the applied references. For example, claim 23 recites "a second electrode on the substrate and separated between ten nanometers and one hundred nanometers from the first electrode."

For similar reasons as discuss above with regards to a similar distinguishing feature in claim 19, recited using respective language, new claim 23 should be found allowable over the applied references. Because each of new claims 24 and 25 depends from new claim 23 and because of the individual distinctive features of each of new claims 24 and 25, each of these

claims should also be found allowable over the applied references. Applicants respectfully request that the Examiner pass new claims 23-25 to allowance.

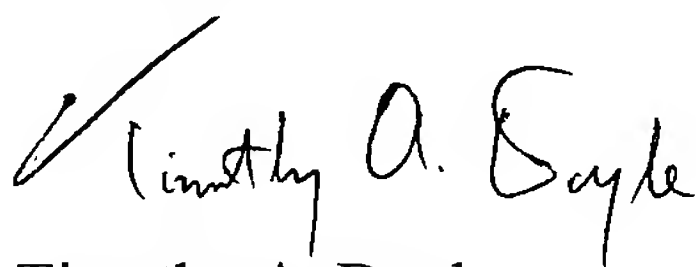
***Conclusion***

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Timothy A. Doyle  
Attorney for Applicants  
Registration No. 51,262

Date: 16 JAN 09

1100 New York Avenue, N.W.  
Washington, D.C. 20005-3934  
(202) 371-2600

894109\_4.DOC